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U. S. Department of Agriculture, Forest Service
Southern Forest Experiment Station
Division of Forest Insect Research

SOUTHERN PINE BEETLE
(Dendroctonus frontalis)

Importance

1. Periodically the most destructive forest insect in the South, killing pine trees of pulpwood and lumber size.
2. Increases rapidly and kills groups of trees from a few to many acres.
3. Beetles carry blue stain fungus which hastens death of tree and stains wood, lowering its value.
4. Especially dangerous following prolonged drought periods, windstorms, and fires, but may increase without obvious reason.
5. May spread through apparently healthy timber when epidemic.

Habits

1. Beetles bore through bark of main stem, construct tunnels in cambial region and girdle tree. Eggs laid, and larvae develop within bark. (Larvae, pupae, or young adults may be exposed by shaving outer bark surface with an ax.)
2. Newly-developed beetles often leave trees before the foliage fades. When the crowns become red, the beetles have left (except during winter months).
3. There may be five or six generations a year.
4. Population trends are generally unpredictable.

Symptoms

1. Numerous whitish, yellow, or red-brown pitch-tubes (about as large as a wad of gum) scattered over bark of main stem.
2. In low-vigor trees, pitch-tubes lacking. Reddish boring dust in bark crevices; often conspicuous on spider webs on bark and base of trees.
3. Winding, S-shaped, and criss-crossed tunnels on inner bark surface and surface of wood.



4. Beetle 1/8-inch long, brown to black, normal rounded hind-end; minute notch on front of head (notch may be seen with hand lens when viewed from above).

5. Infestations usually involve groups of trees of 1/2 acre to many acres.

Control

1. Carry out immediate and rapid control to get ahead of insect.
2. Cut-salvage with burning of slabs. Destroy slabs of infested bark knocked off in felling and skidding.
3. Cut-spray with 0.25 percent gamma isomer benzene hexachloride in No. 2 diesel oil.

Formulae:

(a) Crush 2-1/2 pounds of 36 percent gamma isomer benzene hexachloride (technical) and dissolve by stirring in about two gallons of warmed diesel oil. Before solution cools, pour and stir into about 48 gallons of No. 2 diesel oil to make 50 gallons of spray. Costs approximately 17 cents per gallon. Technical BHC sold in 125-pound drums.

or

(b) Stir one gallon of benzene hexachloride (E-11) emulsifiable concentrate (Penn. Salt Mfg. Co.) into about 50 gallons of No. 2 diesel oil. Costs about 19 cents per gallon but is much easier to prepare than formula (a). BHC concentrate sold in 5-gallon containers and 53-gallon drums.

Application:

Use about one gallon of spray per 100 square feet of bark surface. Thoroughly cover all surfaces of infested bark until spray begins to run off. Roll logs, if necessary, to cover under side.

Total cost of cut-spray method varies from \$1.20 to \$2.50 or more per tree, depending largely upon tree size, accessibility, and concentration of infestation.

Most Important Features

1. Beetles go through life cycle in 30 to 40 days during the warmer months and broods develop within bark.
2. In cut-salvage work, remove infested trees rapidly and burn slabs at mill.
3. In cut-spray control, spray infested trees immediately after felling.



4. Treat only trees that have living broods within. These are usually green-top or slightly faded trees.
5. The most important point is to destroy broods before they leave trees.
Keep ahead of the insect.

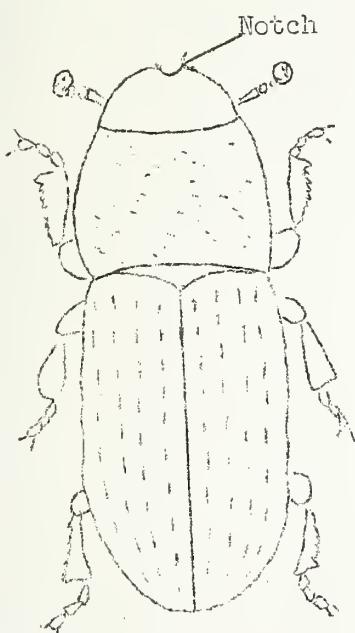
Precautions

Benzene hexachloride is poisonous. Handle with care. Keep insecticides off skin and away from eyes and nose.

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LIFE CYCLE OF SOUTHERN PINE BEETLE
(30-40 days in summer)



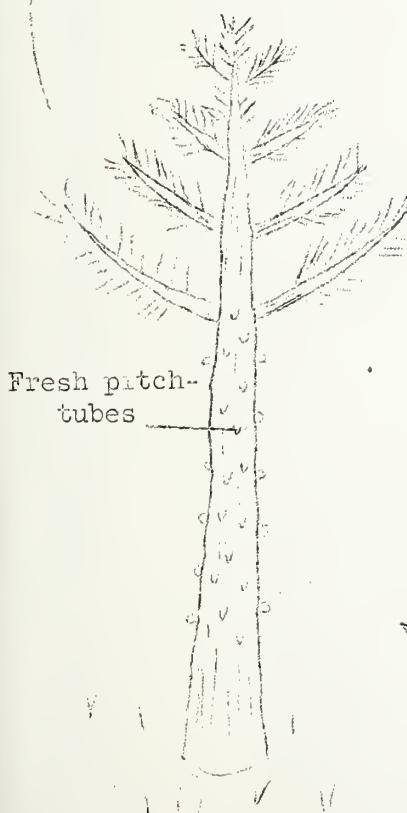
Adult Beetle (x23)

I
Actual size
of adult

Adults make
S-shaped tunnels
on inner bark

Tunnel
packed
with
boring dust

Larvae
and pupae
within bark



Entrance holes with pitch-tubes
on surface of green trees indi-
cate fresh attack.

Exit holes
like "shot"
holes
and old
pitch-tubes

Yellowish or reddish-brown crowns,
usually in groups.

